Space Weather Forecast

Issued on Sunday, 03 July 2022 at 01:30 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of G1/Minor Storms throughout the forecast period.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Very Low over the past 24 hours, with no significant flares observed. There are six sunspot regions, although only two are notable. A mature region in the southwest, is inactive and fading, with a region in the northeast developing a trailing spot and increasing in complexity. The remaining regions are all weak, benign or fading. No Earth-directed CMEs (coronal mass ejections) have been observed on available imagery.

Solar Wind / Geomagnetic Activity: The solar wind speed has been slow and steadily declining through the last 24 hours, as the effects of a CME arrival begin to ease. Total magnetic field strength has been moderate throughout, but has steadily weakened through the period. the important north-south component of the magnetic field started moderately negative, but switched to a moderately positive orientation, due to the transit of the trailing 'cloud' of plasma behind the initial CME. Geomagnetic activity was mainly Active during the first half of the period, with a single G1/Minor Storm interval, but has been Quiet for the remainder of the period.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is likely to be Low or Very Low, with a very slight chance of Moderate activity.

Solar Wind / Geomagnetic Activity: The effects of the current CME will continue to subside through day 1 (03 July). Further Earth-directed CMEs may arrive at the Earth early on 03 July and either late on 05 or into 06 July. A fast solar wind may connect with the Earth on 04 July with elevated speeds although this low confidence, due to the relative positions of Earth and the feature on the solar disc. A further fast solar wind is then likely to connect with Earth on day 3 (05 July) with estimated speeds of 500km/s. There is a slight chance of G1/Minor Storms throughout much of the period, with a higher risk on day 3 due to the combination of the potential onset of the initiation of the fast solar wind and the possible CME arrival.

Energetic Particles / Solar Radiation: In the absence of any significant sunspot development, the count rate of energetic particles (high energy protons) is forecast to persist at background levels, with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	10	20	30	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.